

### **REMARKS**

This Preliminary Amendment also serves as a full and timely response to the Notice of Appeal filed on September 26, 2003. Reexamination in light of the amendments and the following remarks is respectfully requested. The After Final Amendment filed on May 14, 2003 acts as this Preliminary Amendment.

Claims 2, 7-11, 13, and 15-20 are currently pending in this application, with claims 2, 7, 8 and 13 being independent.

Claims 7-8 and 15-20 have been withdrawn from consideration by the Examiner. A Petition Under 37 C.F.R. § 1.144 has been previously filed. Please timely consider this petition in light of the Final Office Action.

This amendment *prima facie* places the case in condition for allowance. Accordingly, entry of this amendment is respectfully requested in this RCE. No new matter is added.

The delay in any Action between the May 14, 2003 filing and this RCE is regrettable.

### **Drawings**

Figure 1 has been amended within the previously filed Request for Approval of Drawing Corrections, as requested by the Examiner. Withdrawal of the objection to the drawings is respectfully requested.

### **Rejections under 35 U.S.C. 112**

Claims 9 and 12 were rejected under 35 U.S.C. 112, second paragraph.

This rejection is traversed at least for the following reasons.

While not conceding the propriety of this rejection and in order to advance the prosecution of this application, claim 9 has been amended and claim 12 has been canceled. Withdrawal of this rejection and allowance of the claims is respectfully requested.

**Rejections under 35 U.S.C. §102 and §103:**

Claims 2, 10, 11 were rejected under 35 U.S.C. §102 as being allegedly anticipated by U.S. Patent No. 5,291,062 issued to Higgins, III (Higgins).

Claims 4, 9, 12-14 were rejected under 35 U.S.C. §103 as being allegedly obvious over Higgins.

These rejections are respectfully traversed for at least the following reasons.

While not conceding the propriety of this rejection and in order to advance prosecution of the above-identified application, claims 4, 12 and 14 have been canceled, rendering this rejection moot as to claims 4, 12 and 14.

Claims 9-11 are dependent upon claim 2. Claim 2 is drawn to a semiconductor package comprising:

a first insulating substrate carrying a mounting portion for mounting a semiconductor device and a first electrically conductive pattern electrically connected to said semiconductor device;

a sidewall section formed upright around said mounting portion of said first insulating substrate;

a cavity defined by said first insulating substrate and the sidewall section and encapsulated by encapsulating resin as said semiconductor device is mounted on said mounting portion; and

a second insulating substrate provided in said cavity and on said sidewall section and carrying a second electrically conductive pattern electrically connected to said first electrically conductive pattern via through-holes formed in said sidewall section;

wherein solder lands are provided at least in said cavity on one surface of said first insulating substrate,

wherein a heat radiating plate is provided on an opposite surface of said first insulating substrate.

Higgins is arguably teaches an area array semiconductor device having a lid with functional contacts.

The Office Action contends that Higgins teaches a first insulating substrate 42, 114. In this regard, a substrate 42 is found within figure 4, while a substrate 114 is found within figure 7.

However, note that Higgins fails to teach substrate 114 as an insulating substrate. Instead, Higgins arguably teaches that Substrate 114 has metallization 114 in the die cavity 106 to allow a plurality of semiconductor dice 102 to be interconnected, wherein the metallization 114 can be routed to different conductor planes in the substrate so that the dice do not have to be interconnected in-line, using the same bonding pads (column 8, lines 19-25).

Higgins arguably teaches a cavity 16 within figure 4 and a cavity 106 within figure 7. However, Higgins fails to disclose, teach or suggest cavities 16, 106 being encapsulated by encapsulating resin, as claimed. Higgins is silent as to this feature and the Office Action fails to provide guidance as to where this feature is actually found.

Figures 4 and 7 of Higgins fails to disclose, teach or suggest a heat radiating plate is provided on an opposite surface of said first insulating substrate. In this regard, no heat radiating plate is shown within figures 4 and 7.

Claim 10 provides that the encapsulating resin is planarized. However, Higgins fails to disclose, teach or suggest a planarized encapsulating resin, wherein a cavity is encapsulated by the encapsulating resin, as claimed.

All features are not found within Higgins. Thus, Higgins fails to anticipate the claimed invention. Withdrawal of this rejection and allowance of the claims is respectfully requested.

Claim 13, previously dependent upon claim 4, has been placed into independent form. Claim 13 is drawn to a semiconductor package comprising:

a first insulating substrate carrying a mounting portion for mounting a semiconductor device and a first electrically conductive pattern electrically connected to said semiconductor device;

a sidewall section formed upright around said mounting portion of said first insulating substrate;

a cavity defined by said first insulating substrate and the sidewall section and encapsulated by encapsulating resin as said semiconductor device is mounted on said mounting portion; and

a second insulating substrate provided in said cavity and on said sidewall section and carrying a second electrically conductive pattern electrically connected to said first electrically conductive pattern via through-holes formed in said sidewall section;

wherein solder lands are provided at least in said cavity on one surface of said first insulating substrate,

wherein said second insulating substrate is a laminated sheet lined on one side with copper, and

wherein said encapsulating resin is planarized.

The Office Action contends that Higgins teaches a first insulating substrate 42, 114. In this regard, a substrate 42 is found within figure 4, while a substrate 114 is found within figure 7.

However, note that Higgins fails to teach substrate 114 as an insulating substrate. Instead, Higgins arguably teaches that Substrate 114 has metallization 114 in the die cavity 106 to allow a plurality of semiconductor dice 102 to be interconnected, wherein the metallization 114 can be routed to different conductor planes in the substrate so that the dice do not have to be interconnected in-line, using the same bonding pads (column 8, lines 19-25).

Higgins arguably teaches a cavity 16 within figure 4 and a cavity 106 within figure 7.

However, Higgins fails to disclose, teach or suggest cavities 16, 106 being encapsulated by encapsulating resin, as claimed. Higgins is silent as to this feature and the Office Action fails to provide guidance as to where this feature is actually found.

Higgins also fails to disclose, teach or suggest an encapsulating resin as being planarized.

Thus, Higgins fails to disclose, teach or suggest the claimed invention. Withdrawal of this rejection and allowance of the claims is respectfully requested.

**New non-final Office Action**

If the allowance of the claims is not forthcoming at the very least, then a **new non-final Office Action** is respectfully requested at least for the reasons provided hereinbelow.

**Conclusion**

For the foregoing reasons, all the claims now pending in the present application are allowable, and the present application is in condition for allowance. Accordingly, favorable reexamination and reconsideration of the application in light of the amendments and remarks is courteously solicited.

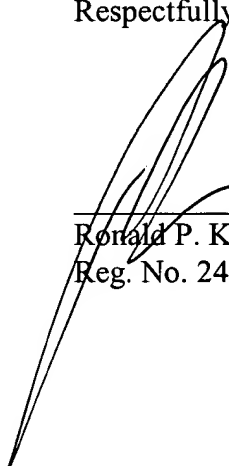
If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone Brian K. Dutton, Reg. No. 47,255, at 202-955-8753, or the undersigned attorney at the below-listed number.

If any fee is required or any overpayment made, the Commissioner is hereby authorized to charge the fee or credit the overpayment to Deposit Account # 18-0013.

Respectfully submitted,

DATE: December 19, 2003

**RADER, FISHMAN & GRAUER PLLC**  
Lion Building  
Suite 501  
1233 20<sup>th</sup> Street, N.W.  
Washington, D.C. 20036  
Tel: (202) 955-3750  
Fax: (202) 955-3751  
Customer No. 23353



---

Ronald P. Kananen  
Reg. No. 24,104